

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
18 April 2002 (18.04.2002)

PCT

(10) International Publication Number
WO 02/30732 A1(51) International Patent Classification: B62M 1/04,
B62K 3/00, B62M 15/00Carlos, Jorge [PT/PT]; Poutena, P-3780 594 Vilarinho do
Bairro - Anadia (PT).

(21) International Application Number: PCT/PT01/00025

(74) Common Representative: GOLDBIKE-INDÚSTRIA
DE BICICLETAS, LDA; Poutena, P-3780 594 Vilarinho
do Bairro- Anadia (PT).

(22) International Filing Date: 11 October 2001 (11.10.2001)

(25) Filing Language: English

(81) Designated States (national): AE, AG, AL, AM, AU, AZ,
BA, BB, BG, BR, BY, BZ, CA, CN, CO, CR, CU, CZ, DM,
DZ, EC, EE, ED, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NO, NZ, PL, RO, RU, SD,
SG, SI, SK, SL, TJ, TM, TT, TZ, UA, UG, US, UZ, VN,
YU, ZA, ZW.

(26) Publication Language: English

(30) Priority Data:
102523 G 13 October 2000 (13.10.2000) PT(71) Applicant (for all designated States except US): GOLD-
BIKE-INDÚSTRIA DE BICICLETAS, LDA [PT/PT];
Poutena, P-3780 594 Vilarinho do Bairro- Anadia (PT).(84) Designated States (regional): European patent (AT, BE,
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,
NL, PT, SE, TR).

(72) Inventor; and

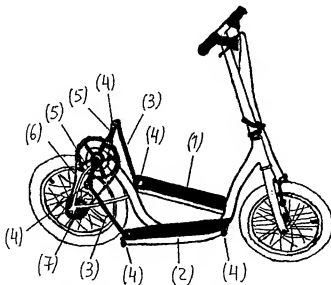
(75) Inventor/Applicant (for US only): PRIOR ALEIXO,

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

[Continued on next page]

(54) Title: STEP-BIKE



(57) Abstract: The invention of this Step-Bike moved by Horizontal Pedals with or without Velocities contain a pair of Horizontal Pedals (right and left) on which when one is up (1) the other is down (2) and the alternating propelling force of the right and left Legs of a Person on it, make force on two opposed Shafts (3) which connect by Liners (4) on a Pinion with right and left Crank (5) which through a Transmitting Shaft or Chain (6) connect on a Pinion fixed on a Back Hub (7) that may include, on a velocities option, Internal Gears (from 3 to 10) and Internal Brakes like Shimano Nexus Hub or equivalent - this eliminates the needing of external Gears and Brakes. Complementing this inventive part, the Step-Bike contain a Steel or Aluminium Tubular Frame with Fork, Direction, Handle-bar, Brakes on Fork, Brake Cable and Front Brake Lever, Revo-Shift Lever (in case of Gears), a Front Wheel and a Back Wheel.

WO 02/30732 A1



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

DESCRIPTION

STEP-BIKE

The present invention refers to a Step-Bike moved by Horizontal Pedals with or without Velocities.

In general any Mini-Scooter is composed of two wheels , a platform to put the foots , a handle-bar to put the hands and a back foot brake.

This traditional Mini-Scooter is moved by a Person impulsion , putting one feet on platform and another on floor and have two disadvantages:

- on meadle and big distances it is overtired
- it is very unbalanced.

This invention have the solutions to that limitations.

Indeed , the Horizontal Pedals Step-Bike we invented have the following advantages:

- 1° - a Person can Step kilometres without fatigue
- 2° - it is not unbalanced
- 3° - it is similar to the utility of a bicycle.

The invention of this Step-Bike moved by Horizontal Pedals with or without Velocities contain a pair of Horizontal Pedals (right and left) on which when one is up (1) the other is down (2) and the alternating propelling force of the right and left Legs of a Person on it , make force on two opposed Shafts (3) which connect by Liners (4) on a Pinion with right and left Crank (5) which through a Transmitting Shaft or Chain (6) connect on a Pinion fixed on a Back Hub (7) that may include, on a velocities option, Internal Gears (from 3 to 10) and Internal Brakes , like Shimano Nexus Hub or equivalent – this eliminates the needing of external Gears and Brakes.

When a Pedal is up (1) the other is down (2) and with the back Wheel movement they alternate. Then the continuous Step-Bike movement is made by the alternating propelling force on Pedals of a Person Legs.

Like this a Person may Step kilometres without fatigue and stopping.

And in case of having Velocities, we can put a low or a high speed for a easily Step.

Complementing this inventive part , the Step-Bike contain a Steel or Aluminium Tubular Frame with Fork, Direction, Handle-bar , Brakes on Fork, Brake Cable and Front Brake Lever, Revo-Shift Lever (in case of Gears) , a Front Wheel and a Back Wheel.

For the construction of this Step-Bike we resolved some Tecnical Problems:

- A) the Horizontal Pedals setting problem
- B) the Horizontal Pedals size problem in such a way that maximize the utilization and minimize the Legs stress
- C) the Shafts size in such a way that do not make the anti-pedal effect
- D) the Liners , Pinion , Cranks , Chain or Transmitting Shaft collocation problem
- E) the back Hub collocation , running well with the Chain or Transmitting Shaft

So, a completely different system from the traditional Mini-Scooter.

This Step-Bike have completely different materials and we resolved various tecnical problems to make it.

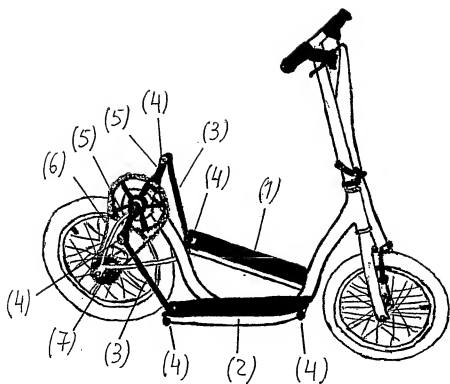
CLAIMS

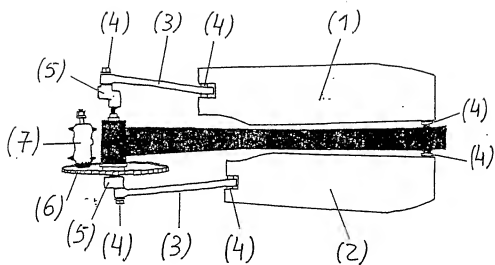
1

A Step-Bike moved by Horizontal Pedals with or without Velocities characterized by the Legs of a Person making propelling force on a pair of Horizontal Pedals (right and left) on which when one is up (1) the other is down (2) they make force on two opposed Shafts (3) which connect by Liners (4) on a Pinion with right and left Crank (5) which through a Transmitting Shaft or Chain (6) connect on a Pinion fixed on a Back Hub (7) that may include, on a velocities option, Internal Gears (from 3 to 10) and Internal Brakes like Shimano Nexus Hub or equivalent – this eliminates the needing of external Gears and Brakes.

2

A Step-Bike moved by Horizontal Pedals according to Claim I characterized by being complemented with a Steel or Aluminium Tubular Frame with Fork, Direction, Handle-bar , Brakes on Fork, Brake Cable and Front Brake Lever, Revo-Shift Lever (in case of Gears), a Front Wheel and a Back Wheel .





INTERNATIONAL SEARCH REPORT

Intern plication No
PCT/PT 01/00025

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 B62M1/04 B62K3/00 B62M15/00		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 B62M B62K		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 345 478 A (DOUGLAS) 12 July 2000 (2000-07-12) the whole document	1,2
A	US 4 828 284 A (SANDGREN JOHN A) 9 May 1989 (1989-05-09) the whole document	2
A	US 2 481 683 A (JIRI POLACEK) 13 September 1949 (1949-09-13) the whole document	2
A	US 5 110 148 A (STIENBARGER LEROY ET AL) 5 May 1992 (1992-05-05) the whole document	1
-/-		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 1 February 2002		Date of mailing of the international search report 11/02/2002
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl Fax (+31-70) 340-3016		Authorized officer Denicolai, G

INTERNATIONAL SEARCH REPORT

Interns ication No
PCT/PT 01/00025

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indicator, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 678 505 A (DUCOMMUN EMILE-HENRI-CAMILLE) 25 March 1930 (1930-03-25) the whole document	1
A	DE 296 02 729 U (MUNDORF JOHN) 19 June 1997 (1997-06-19) the whole document	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern ication No
PCT/PT 01/00025

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2345478	A	12-07-2000	NONE	
US 4828284	A	09-05-1989	NONE	
US 2481683	A	13-09-1949	NONE	
US 5110148	A	05-05-1992	NONE	
FR 678505	A	25-03-1930	NONE	
DE 29602729	U	19-06-1997	DE 29602729 U1	19-06-1997

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
18 April 2002 (18.04.2002)

PCT

(10) International Publication Number
WO 02/030732 A1(51) International Patent Classification: B62M 1/04,
B62K 3/00, B62M 15/00

(21) International Application Number: PCT/PT01/00025

(22) International Filing Date: 11 October 2001 (11.10.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
102523 G 13 October 2000 (13.10.2000) PT(71) Applicant (for all designated States except US): GOLD-
BIKE-INDÚSTRIA DE BICICLETAS, LDA [PT/PT];
Poutena, P-3780 594 Vilarinho do Bairro - Anadia (PT).

(72) Inventor; and

(75) Inventor/Applicant (for US only): PRIOR ALEIXO,
Carlos, Jorge [PT/PT]; Poutena, P-3780 594 Vilarinho do
Bairro - Anadia (PT).(74) Common Representative: GOLDBIKE-INDÚSTRIA
DE BICICLETAS, LDA; Poutena, P-3780 594 Vilarinho
do Bairro - Anadia (PT).(81) Designated States (national): AE, AG, AL, AM, AU, AZ,
BA, BB, BG, BR, BY, BZ, CA, CN, CO, CR, CU, CZ, DM,
DZ, EC, EE, GD, GE, GH, GM, HR, HU, IL, IN, IS, JP,
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NO, NZ, PL, RO, RU, SD,
SG, SI, SK, SL, TJ, TM, TT, TZ, UA, UG, US, UZ, VN,
YU, ZA, ZW.(84) Designated States (regional): European patent (AT, BE,
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,
NL, PT, SE, TR).

Declaration under Rule 4.17:

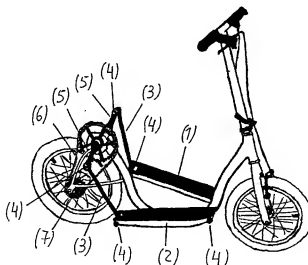
— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report
— with amended claims

[Continued on next page]

(54) Title: STEP-BIKE



(57) Abstract: The invention of this Step-Bike moved by Horizontal Pedals with or without Velocities contain a pair of Horizontal Pedals (right and left) on which when one is up (1) the other is down (2) and the alternating propelling force of the right and left Legs of a Person on it, make force on two opposed Shafts (3) which connect by Liners (4) on a Pinion with right and left Crank (5) which through a Transmitting Shaft or Chain (6) connect on a Pinion fixed on a Back Hub (7) that may include, on a velocities option, Internal Gears (from 3 to 10) and Internal Brakes like Shimano Nexus Hub or equivalent - this eliminates the needing of external Gears and Brakes. Complementing this inventive part, the Step-Bike contain a Steel or Aluminium Tubular Frame with Fork, Direction, Handle-bar, Brakes on Fork, Brake Cable and Front Brake Lever, Revo-Shift Lever (in case of Gears), a Front Wheel and a Back Wheel.

WO 02/030732 A1

WO 02/030732 A1



Date of publication of the amended claims: 25 July 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

AMENDED CLAIMS

[received by the International Bureau on 4 April 2002 (04.04.02);
original claims 1 and 2 amended; new claims 3-8 added; (1 page)]

1. A Step-Bike moved by Horizontal Pedals with or without Velocities characterized by the Legs of a Person when making propelling force on a pair of Horizontal Pedals (1 and 2) they propels the Rear Wheel by a Gear System.
2. A Step-Bike as claimed in claim 1 wherein the pair of Horizontal Pedals (1 and 2) raise and lower in a partial arc the axis of which (4) is on or near the centre of the Front Wheel.
3. A Step-Bike as claimed in claim 1 and 2 wherein the rear (back) part of each Horizontal Pedal (1 and 2) is attached to a Rod (3) by Liners (4) .
4. A Step-Bike as claimed in claim 1 and 3 wherein each Rod (3) is situated on the upside of each Horizontal Pedal (1 and 2) .
5. A Step-Bike as claimed in claim 1 and 4 wherein each Rod (3) is connected by Liners (4) on a Pinion with right and left Crank (5) that point in opposite directions and which are shorter than the Rods (3) .
6. A Step-Bike as claimed in claim 1 and 5 wherein the Pinion with right and left Crank (5) is situated on the upside of the Rear Wheel and on the upside of the Horizontal Pedals (1 and 2) .
7. A Step-Bike as claimed in claim 1 and 6 wherein through a Transmitting Shaft or Chain (6) the Pinion with right and left Crank (5) connect on a Pinion fixed on a back Hub (7) of the Rear Wheel that may include , on a Velocities option, internal Gears (from 3 to 10) and internal Brakes like Shimano Nexus Hub or equivalent (this eliminates the needing of external Gears and Brakes) .
8. A Step-Bike as claimed in claim 1 where it is complemented with a Steel or Aluminium Tubular Frame with Fork, Direction, Handle-Bar, Brakes, Brakes Levers,Revo-Shift Lever (in Velocities case), a Front Wheel and a Rear Wheel.